

### **REMARKS**

This Amendment is filed in response to the Office Action mailed July 10, 2008. The Applicant respectfully requests reconsideration. All objections and rejections are respectfully traversed.

Claims 1-7 and 12-25 are pending in the application.

Claims 1, 3, 6 and 25 have been amended.

No new claims have been added.

#### ***Allowable and Indicated Allowable Claims***

At paragraphs 9-10 of the Office Action, claims 12-19 were allowed and claims 2-3, 5, 7, 21-23 and 25 were indicated as allowable if rewritten in independent form. The Applicant thanks the Examiner for these allowances and indications of allowability.

#### ***Claim Objections***

At paragraph 4 of the Office Action, claims 3 and 6 were objected to in relation to typographical errors. The Applicant has corrected these typos and respectfully urges the claims are now non-objectable.

#### ***Claim Rejections - 35 U.S.C. §102***

At paragraphs 5-6 of the Office Action, claims 1, 4, 6 and 20 were rejected under 35 U.S.C. §102(b) over Merchant, John, "The Spatial Modulation Staring Sensor," Proceedings of IRIS Specialty Group on Passive Sensor, March 1997 (hereinafter "the Merchant paper").

The Applicant's claim 1, representative in part of the other rejected claims, sets forth (emphasis added):

1. A system for scanning a target of interest in a scene comprising:
  - a high-resolution collecting optic;
  - a spatial modulation reticle located in a high-resolution image plane of the collecting optic, the reticle being a temporally varying pattern in the image plane;
  - a demagnifying relay optic;

a primary small-format focal plane array (FPA) detector located in the demagnified image plane that receives reticle-modified images and outputs image frames; and

a processor that performs, with the image frames, *a balanced demodulation function that reduces image clutter by compensating for the effect of movement of the system relative to the scene, wherein the balanced demodulation function utilizes differences between image frames and averages of image frames.*

The Merchant paper describes a Spatial Modulation Staring Sensor that uses a “baseline, modulation/demodulation process.” See section 2.2. In baseline demodulation, an output image  $A(i,j)$  is calculated as “ $A(i,j) = (1/2) * [(V1(i,j) - V3(i,j))^2 + (V2(i,j) - V4(i,j))^2 + (V5(i,j) - V7(i,j))^2 + (V6(i,j) - V8(i,j))^2]$ ” where  $Vn(i,j)$  is the intensity of output pixel  $(i,j)$  in the  $n$ th frame of  $[a]$  8-frame sequence.” See section 2.3.

The Applicant respectfully urges that the Merchant paper is silent concerning the Applicant’s claimed “*a balanced demodulation function that reduces image clutter by compensating for the effect of movement of the system relative to the scene, wherein the balanced demodulation function utilizes differences between image frames and averages of image frames.*”

At page 4 of the Office Action, the Examiner suggests that the claimed “balanced demodulation function” may be interpreted as the same as the Merchant paper’s baseline demodulation, under broadest reasonable interpretation analysis. The Applicant respectfully requests reconsideration in light of the claim amendments.

While the Applicant’s balanced demodulation function **compensates for the effect of movement of the system relative to the scene**, the Merchant paper’s baseline demodulation does not provide this type of compensation. Indeed, the Merchant paper does not address the issue of a sensor system moving relative to the scene it is scanning (for example, if the sensor system is disposed in an aircraft that is moving).

Such compensation in the Applicant’s claimed system may be achieved, in part, by having **the balanced demodulation function utilize differences between image frames and averages of image frames**. One example of using differences between im-

age frames and averages of image frames is illustrated in formula (1) at page 10 of the specification, and claimed specifically in claim 2. In such example, the difference between an output image frame  $V_2$  and average of output image frames  $(V_1 + V_3)/2$  is calculated. The Merchant paper's baseline demodulation does utilize differences from averages of image frames.

Accordingly, the Applicant respectfully urges that the Merchant paper is legally insufficient to anticipate the present claims under 35 U.S.C. § 102 because of the absence of the Applicant's claimed novel *"a balanced demodulation function that reduces image clutter by compensating for the effect of movement of the system relative to the scene, wherein the balanced demodulation function utilizes differences between image frames and averages of image frames."*

***Claim Rejections - 35 U.S.C. §103***

At paragraphs 7-8 of the Office Action, claim 24 was rejected under 35 U.S.C. § 103(a) over the Merchant paper in view of Hornbek, L.J., "Deformable-Mirror Spatial Light Modulators," Proceedings of SPIE vol. 1150, 1989 (hereinafter "Hornbek").

The Applicant notes that claim 24 depends from claim 1, which is believed to be allowable for at least the reasons discussed above. Accordingly, claim 24 is believed to be allowable due to its dependency, as well as for other separate reasons.

Should the Examiner believe a telephonic interview would be helpful in the disposition of this Application, the Examiner is encouraged to call the undersigned attorney at (617) 951-2500.

In summary, all the independent claims are believed to be in condition for allowance and therefore all dependent claims that depend there from are believed to be in condition for allowance. The Applicant respectfully solicits favorable action.

Please charge any additional fee occasioned by this paper to our Deposit Account  
No. 03-1237.

Respectfully submitted,

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